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Futurist Timbres: Listening Failure in Milan, 1909–1914

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Abstract and Keywords

This chapter tracks timbre through the mediated public sphere of Milan, as it came to congeal in Italian Futurism. Long mythologized as the origin of noisy art, sound scholars have yet to consider what the movement's timbres meant in their time. They emerged beneath the rubric of "musical sensibility"—a coinage that harked back to timbre's eighteenth-century emergence under the sign of aesthetic attention within Western modernities. The Futurists' activities can thus be broadly historicized; vice versa, in their own context, timbre becomes estranged as a centuries-old concern. The Futurists' interest in timbre dates them; it also proves their undoing: they set out to colonize the world of timbre, but social and technological factors intervene. Thus, while Futurism may not yield origins for modernism, it underscores the relational nature of listening—especially listening for timbre, which, as the social organization of concentrated listening, unexpectedly manifests when aesthetic attention breaks down.

Keywords: Futurism, timbre, Filippo Tommaso Marinetti, Francesco Balilla Pratella, Futurist music, Luigi Russolo, musical instruments, musical noise, intonarumori, enharmonic sounds

Futurism has set up camp in the now-verdant field of sound studies. Put to use in discussions of modernist noise, Sun Ra, and cochlear implants, Futurusm has proven surprisingly useful when probing sonic epistemologies, whether sensorial, affective, or physical.[1] The term Futurism has also made key appearances in contemporary ontologies that stress sound's potentiality: in gesturing toward that which is yet to be, futurism seems to apply a sheen over sound—one that can augur posthuman fantasies and dystopian premonitions.[2] In this chapter, I probe the earliest use of the word as applied to sound, focusing particularly on the special valence of timbre in that connection. "Futurismo" was the banner under which Filippo Tommaso Marinetti (1876–1944), an Italian poet, playwright, and playboy millionaire, launched one of Europe's first cultural avant-gardes. As he framed it in his "Fondation et manifeste du futurisme," published on the front page of the French newspaper *Le Figaro* in January 1909, Futurism aimed to break loose from tradition wherever it could be found.

Originating in Italy, but with aspirations to invigorate European society more broadly, the movement aimed to speed up time itself by embracing, and thus accelerating, modernity. "Art" was, for Marinetti, inseparable from "life"—or should be. In his view, industrial and urban society had brought a modern sensorium into being, one that suggested several aesthetic innovations. Marinetti thought that artists must take their bearings amid, for example, the sensory tumult of urban throngs: "We shall sing of the great crowds roused up by work, pleasure, or rebellion; the multicolored and polyphonic waves of revolution in the modern capitals."[3] However, his was not a straightforward or unidirectional model of new aesthetic inspiration leading to novel artistic production. Artists, he thought, should not only take material from the city (and other places), but also, crucially, supply its inhabitants with ever-new sensations and experiences.[4]

Music arrived late on the Futurist scene, as something of an afterthought. In January 1909, the fledgling vanguard comprised mainly poets and visual artists: the Futurists were, at this stage, a small, exclusively male group, largely based in Milan. Only subsequently did Marinetti cast around for an amenable composer, opting for the up-and-coming, but little-known, Francesco Balilla Pratella (1880–1955).[5] Marinetti, the renowned (and recently notorious) metropolitan artist, first wrote to the provincial Pratella—born, raised, and residing in the small town of Lugo in Emilia Romagna—in August 1910. They indulged in a heady exchange of letters, followed by a visit by Marinetti to Lugo to secure Pratella's recruitment.[6]

By the end of the year, Pratella had published his first manifesto (*Manifesto dei musicisti futuristi*, 1910), in which he outlined his vision for Futurist music. It was framed mainly in negative terms, stating his avowed opposition to, among other things, music critics, the musical canon, composers based in the academy, and historically conservative stagings of opera.[7] Pratella's manifesto sided with young composers, whom he took to represent Italy's best hope for musical advance, and recommended various measures to promote their music.[8] There is not much in the way of Marinettian doctrine in this manifesto—save one ideological hiccup midway through a list of eleven proposals:

> 5. To liberate our musical sensibility from every imitation or influence of the past. To hear and to sing with our soul turned towards the future, drawing inspiration and aesthetics from nature, from all of its present-day phenomena, both human and extra-human, to exalt man-as-symbol, which continually renews itself by way of several aspects of modern life and through infinite, intimate relation with nature.[9]

There is a shift in register between this point and the one preceding it ("4. To avoid places of commerce and the academy …") and the one following ("6. To destroy prejudice in favor of well-made music …"), as the dismissive tone becomes briefly euphoric. We might even suspect Marinetti's editorial hand.[10]

Whoever wrote the words, though, we can recognize in them the earliest public articulation of what Futurist music would eventually become—albeit with an emphasis on nature, soon to be drowned out by technophile pronouncements. It is worth noting that "musical

sensibility" was singled out even at this early stage, providing—among a tangle of dismissive criticisms—an evocative idea on which the Futurists might try to build. Yet sensibility was immediately treated as special territory—an area that, as point 5 makes plain, needed first to be purged of sonic remnants of the past in order to be claimed. As I will try to show in this chapter, it was from within the ground of sensibility that Futurist innovations in timbre—which, even now, remain among the movement's greatest claims to importance in music history—would emerge.

For the moment, I will resist skipping to Futurist music's most oft-repeated story, that of painter Luigi Russolo (1885–1947), whose path-breaking manifesto, *L'arte dei rumori* (1913), led him to build *intonarumori* (intoners of noise, or prototype noise synthesizers). Instead, we can linger over Pratella's association with the movement. His debut as Futurist took place in a pair of concerts in February and March 1913 at Rome's Teatro Costanzi, one of the Italian capital's preeminent operatic venues, where he conducted a performance of his own orchestral composition *Inno alla vita* (Hymn to Life). The piece is about ten minutes long and is loosely programmatic, divided into a rough schema of childhood, youth, and adulthood—it is supposed to conjure up a tale of masculine individuation through contrasts of dynamics, rhythm, and mood. These contrasts are staged through energetic collisions between a recurring folk melody and "modern" melodic and harmonic progressions, ones largely based on the whole-tone series. It is not difficult to read Pratella's manifesto within the piece: the music seems to offer a lightly encoded opposition between future and past, with the violence of the musical juxtapositions matching with the manifesto's stated aim of generating an ever-livelier interaction between composers and listeners. Yet we would strain to hear it liberating "musical sensibility from every imitation or influence of the past."[11] Orchestral program music had been thriving for well over a century by the time *Inno* was written, while the concert halls of Western Europe were amply strewn with attempts to incorporate (and thus transfigure) folk melodies in the name of various projects of national renewal.

My main reason for bringing up *Inno* is not to champion it as the first Futurist musical work—although it is that—but rather to call attention to the problematic listening that it engendered. Pratella's audience may not have heard much of the work at all, many of them being ill disposed to do so that evening at the Teatro Costanzi. According to Pratella's autobiography, the piece was not well received and called forth the audible ire of the public.[12] A caricature duly appeared in the *Giornale d'Italia*, which showed Pratella on tiptoes atop a podium-cum-bell jar containing withered specimens of the musical past, as shown in Figure 1. The faces of Wagner, Nietzsche, Liszt, and Mahler peer out—all German-speaking, famously intellectual figures (note: no Verdi, Puccini, or Debussy). The caricaturist's line-up casts some light on Futurism's musical intervention as it was more broadly understood at the time, as do Pratella's feverish, upward-striving pose and the musical instrument wired into his heart. These visual elements betray wider suspicions of the Futurists as imposters and pranksters, not to be taken seriously; but they also, paradoxically, echo the contemporary assumption that Pratella was deeply sincere, even a diehard Romantic.

Figure 1. Pratella and his “intoner of noises,” a caricature by Mussachio taken from *Il giornale d’Italia* (January 14, 1911).

For the present purposes, though, the most significant aspect of the image is the caption below it: “Pratella and his ‘intoner of noises’.” More than two years before Russolo would coin the term, *intona rumori* can thus be linked to the public reception of Pratella’s music; these words, in combination with the image of a fantastical, hand-cranked human instrument, already convey the idea of technological innovation in the service of new musical sounds. Emerging in response to an unsuccessful performance, *intona rumori* (the caption-plus-caricature) suggests comical ambiguity as to what is to be to be listened to: whether it is Pratella, calling forth music from the orchestra, or his performance that is eliciting the audience’s hisses and boos.

Pratella’s body became, in other words, a floating signifier within the as-yet-undefined field of Italian Futurist music. From his position on the conductor’s podium, he served as one of the movement’s most recognizable faces: a physical intermediary between the public and “art,” able to accommodate manifold significations and projected meanings. Marinetti, albeit dissatisfied with Pratella’s first attempt at creating Futurist music (*Inno* would soon be rebranded *Musica futurista per orchestra*), nevertheless seems to have recognized the potential in having a composer-conductor on his team. He kept up his letters to Pratella, encouraging him to broaden his vistas ever wider, bidding him to outdo all musical contemporaries, even on the world’s preeminent stage:

> In order to win in Paris and to appear before the eyes of all Europe as an absolute innovator, more advanced than everyone, I sincerely recommend that you set yourself the task—to be approached with resolute aim—of going farther, being more advanced, more insane, more unexpected, more eccentric than anything that has been done before in music. I advise you to be a real daredevil, not to stop even

> when everyone around you will declare you mad, incomprehensible, grotesque, etc.[13]

These words reached Pratella, as did all Marinetti's correspondence, on red letterhead: "Movimento Futurista/diretto da F. T. Marinetti/MILANO, Corso Venezia, 61/Telefono 40-81." The main body of the letter is handwritten; the writing is enormous and lightning fast: a parody of the CEO in a hurry. The last three words quoted here emblazon ever-larger on the page; the final word, *grottesco,* is underlined twice.

How did Pratella, the Lughese gentleman, feel about these attentions from Marinetti and his Milanese cohort? Other correspondents included the painter Umberto Boccioni (1882–1916) and Russolo, about whom more shortly. Pratella's sincere, rather businesslike replies do not reveal much.[14] Yet his relative opacity, taken with the stream of letters directed his way, can illustrate an important point.

In writing to Pratella around this time, the Milanese wing was addressing an abstraction of the composer—one subtly aided by Pratella's distance and inscrutability. In the imaginative projection from metropolis to province, the Futurists gave themselves room to imagine what this composer, or any composer, ought to be, and what his music ought to sound like. Marinetti wanted Pratella to mimic the avant-garde postures of his poets and visual artists: not just to make ever-more outlandish music, but also to become its embodiment through thoughts and acts that were "more insane, more unexpected, more eccentric than anything that has been done before."

Cities and Others

With this background story laid out, let's reacquaint ourselves with Futurist music's most well-known character: Luigi Russolo. Born in the tiny town of Portogruaro in the Veneto region in 1885, Russolo had been living in Milan since 1901. He moved to the big city to become a student at the Brera Academy of Fine Arts. More than ten years later, when he came to write *L'arte dei rumori* (1913), he seemed still to be in the process of absorbing the metropolitan mindset. The manifesto celebrates—too enthusiastically?—the urban scene, famously enjoining readers "to walk across a great modern city with ears more attentive than eyes."[15] While justly celebrated as an early musicalization of the city and everyday life, we might also remark on the country-city double consciousness, betraying Russolo's recent adjustment to an urban sensorium and perspective. Particularly telling is Russolo's mode of addressing the non-urban, the underdeveloped, which Pratella and his music represented. Like Marinetti's goading messages, Russolo framed his manifesto to Pratella as an open letter:

> Dear Balilla Pratella, great Futurist musician,
>
> In Rome, at a very crowded Teatro Costanzi, while with my futurist friends Marinetti, Boccioni, Carrà, Balla, Soffici, Papini, Cavacchioli, I was listening to the orchestral performance of your overwhelming Futurist Music, a new art appeared

> to my mind, one that only you can create: the Art of Noises, the logical consequence of your magnificent innovations.[16]

This opening gambit is followed by a brisk outline of musical evolution, from the deep silences of "ancient life," via the supposedly magical origins of sound-qua-sound among primitive societies, to the ever-noisier music that has accompanied the industrial age. At this point, machines enter the story, suddenly becoming the prime movers of musical development:

> This musical evolution is paralleled by the multiplication of machines, which everywhere collaborate with man. Not only in the clamorous atmosphere of great cities, but also in the countryside, which until very recently was normally silent, the machine has now created a great variety of—and competition among—noises, such that pure sound, in its rarity and monotony, no longer stimulates our emotions. To arouse and intensify our sensibility, music has developed towards more complex polyphony and towards a greater variety of timbres or instrumental colors, seeking out the most complicated progressions of dissonant harmony, and so vaguely preparing for the creation of musical noise.[17]

This historical panorama in place, Russolo proceeds to criticize contemporary musical aesthetics for restricting itself to the relatively small range of timbres offered by the orchestra. He urges breaking out of this "limited circle" of sounds, instead drawing inspiration from the noisiest places in modern life, such as factories, cities, and battlefields. These are the sites where the newest machines, and so the newest noises, will be found. Russolo presents Marinetti's prose poem, "La Battaglia di Adrianopoli" (1912)—which is highly onomatopoeic and, according to Marinetti's theory of *parole in libertà* (words in freedom), eschews punctuation and declension of verbs—as a precedent for Futurism's celebration of modern sound, including a lengthy excerpt as a noisy demonstration.

The rest of the manifesto is concerned with the practical means by which sounds might be extracted from their environment and subjected to musical manipulation. Drawing on Helmholtz's acoustic theory, Russolo argued that noises are to be distinguished from sounds by the complexity of their upper partials. Thus, like all sounds, noises must have an underlying pitch or combination of pitches. To re-create any given noise, all one needed to do was work in reverse: to subject a given pitch to a series of acoustic transformations.

Russolo proposed building new instruments, hinting at a *meccanismo rotativo* (rotating mechanism) that would produce a given noise through an entire chromatic scale. Although he admitted that he had not yet built such an instrument, he listed several types of noises that he hoped to capture by these means: roars, screeches, creaks, bangs, gurgles, and so on. These sounds could only loosely be evoked through words, which provide us with a limited vocabulary; the manifesto stressed that noises were infinite in their variety and ever-unpredictable in their effects. It is here that timbre comes into its own, re-

vealing itself as the unlimited domain of musical expansion into the future. Thus, the manifesto wound to a close by urging young composers

> to observe with constant attention all noises, in order to understand the various rhythms that they comprise—both their primary and secondary rhythms. Then, by comparing the timbres of diverse noises with the timbres of sounds, they will convince themselves of how much more numerous noises are than sounds. This will impart not only understanding, but also taste and passion for noises. Our multiplied sensibility, having been conquered by Futurist eyes, will finally obtain Futurist ears. Thus it shall be that, one day, the motors and the machines of our industrial cities will be knowledgeably intoned, making of every workshop [officina] an intoxicating orchestra of noises.
>
> Dear Pratella, I place these observations before your Futurist genius, inviting a discussion. I am not a musician: I thus have neither acoustic biases nor any works to defend. I am a Futurist painter who projects outwards from himself, upon a sister art, his desire to renew everything…[18]

As Russolo finally returns to address Pratella—after having given us a glimpse of the musicalized city of the future—it seems as though the manifesto is all but over. For this reason, perhaps, scholars usually leave this framing device out of the discussion. Yet paying attention to the epistolary conceit can do more than add historical color to Russolo's ideas; it can also help establish the field of positions and position-takings (to borrow Bourdieu's terminology) that nurtured and sustained them.[19] First, it tells us where and how the kingdom of timbres disclosed itself to him—or, at least, how he wanted us to think it was disclosed: while listening, in a concert hall, to Pratella's music. This listening is indirect—he listens to one thing and hears another—giving the revelation that it provides the structure of a dream: as he is engulfed by the audience's whistles and cries, Russolo hallucinates a music made of noises.[20] Pratella's music is silenced and overlaid, even as it acts as a catalyst for the Futurist imagination—and even as his body, gesticulating before the crowd, appears to mediate the prevailing sensory confusion.

Second, in refracting his address to the Italian public (read: the intelligentsia) through Pratella, Russolo directed his intervention toward a particular social and cultural order. From the outset, it is clear that his manifesto is attacking, and seeking to build anew, the institution of orchestral art music.[21] Yet the address also carries subtler implications, setting up the Art of Noises as a projection of a metropolitan soundscape over a distant, presumably quiet Italian countryside.[22]

In other words, this manifesto-as-letter is an icon for a movement through space, from Milan to Lugo, carrying with it aggressive, territorializing noise. The message that it delivers is a kind of eviction notice, telling us that, by means of prosthetic sense organs ("Futurist ears"), existing relationships between sense and place will be upended. Russolo's manifesto outlines a plan for domination over *sensibilità*, with timbre as the chief domain that the Futurists should aim to colonize.

Technically Timbre

What happened next fell short, perhaps inevitably, of Russolo's world-conquering ambition. As he set about building musical instruments, he encountered various forms of resistance, both from society—in the form of early audiences and the press—and, more immediately, through his engagement with technology. In the months following the publication of *L'arte dei rumori,* he established a Milanese laboratory for research into musical noise—perhaps the first of the many studios for musical research that would be established in the course of the twentieth century. Together with Futurist painter Ugo Piatti (1888–1953), Russolo experimented with sound-producing mechanisms, publishing occasional updates on the findings in the Florentine journal *Lacerba.* These bulletins ape a scientific model of research, although they avoid technical details; they serve a pragmatic function, placing a date stamp on inventions that might have been claimed by others.

Russolo's first update, published on July 1, 1913, was entitled "Gl'intonarumori futuristi: Arte dei rumori" (The Futurist intonarumori: Art of noises). This short article contains his first use of the term *intonarumori* to refer to the four instruments that he and Piatti had recently built: "The first gives the noise *Bang* [*Scoppìo*], like a car engine; the second gives a *Crackle* [*Crepitìo*], like a fusillade; the third, a *Buzz* [*Ronzìo*], like a dynamo; the fourth gives various types of *Scrapes* [*Stropiccìi*]."[23] In the same article, Russolo reported ongoing work on four additional instruments: a rumbler (*rombatore*), thunderer (*tuonatore*), roarer (*scrosciatore*), and gurgler (*gorgogliatore*).[24]

This glance into Russolo and Piatti's laboratory (pictured in two famous photographs from 1913, shown in Figure 2), provides an opportunity to observe the program announced in *L'arte dei rumori* being implemented and (silently) revised. In March, Russolo had declared that he would build instruments (not yet given the name *intonarumori*), and may even have begun doing so; but faced with the technical challenges of instrument-making, the emphasis shifted from exploring the timbres that he could evoke through words (his manifesto listed twenty species) to those timbres that his inventions could actually produce.

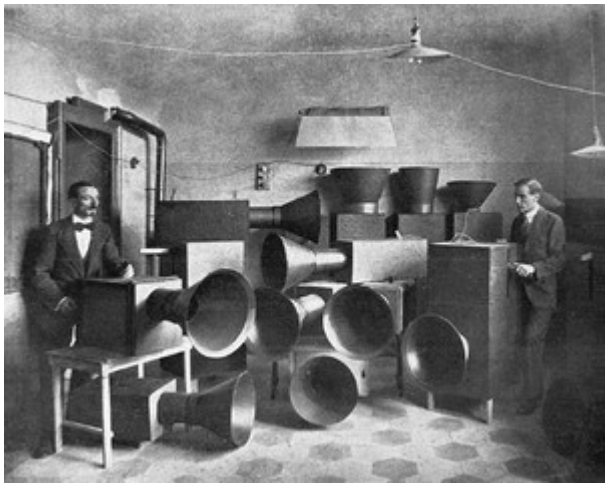


Figure 2. Luigi Russolo and Ugo Piatti, in the laboratory of the *intonarumori* in Milan. Photograph printed in Jules Ecorcheville, "Le futurisme ou la bruit dans la musique," *Revue musicale de la Société international de musique* 7 (1913): 1–13.

In other words, the engagement with technology involved a process of give and take: Russolo and Piatti increasingly sought not to produce timbres that were nameable in advance, but to become connoisseurs of unplaceable sounds. Hence the following description, published in that first *Lacerba* article, of the instruments' sounds:

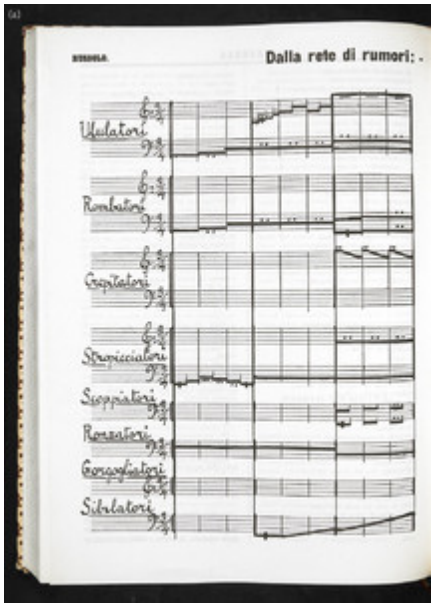
> [D]espite the similarity in timbre to an imitated, natural noise—which is achieved in these instruments almost to the point of deception—as soon as one hears that the noise varies in tone, one notices that it immediately loses its episodic, solely imitative character.[25]

Russolo here states positively what might otherwise be considered a shortcoming: that the *intonarumori* did not maintain stable reference to a particular kind of timbre: the possibility of drawing the listener's attention to timbre diminished as pitch varied, causing it to shed its symbolic currency as a nameable entity.[26]

It was perhaps the recognition of this semantic problem that led Russolo to change tack. Rather than promote the *intonarumori* as vehicles for exploring specific timbres, he increasingly rebranded them as "enharmonic" instruments during the period between 1913 and 1914. For Russolo, enharmonicism referred to the microtonal intervals used by the ancient Greeks.[27] Yet beyond—and implicitly before—the Greeks, he sought an originary coincidence between perception and acoustic reality in the howling of the wind, which "performs complete descending scales [that] are neither diatonic nor chromatic, but enharmonic."[28]

He worked out his concept of enharmonic sounds as a notation system, as shown in Figure 3: continuous lines represented the duration of a note over the bar, which was subdivided into beats; dots above or below the lines instruct the player to raise or lower the

pitch by a quarter-tone (double dots are semitones). These pages were published in *Lacerba* on March 1, 1914, in a short article entitled “Grafia enarmonica per gl’intonarumori futuristsi” (Enharmonic notation for the Futurist *intonarumori*). His graphic system marked a new stage in the development of the instruments, which had by now become a sonic medium, complete with its own writing system.



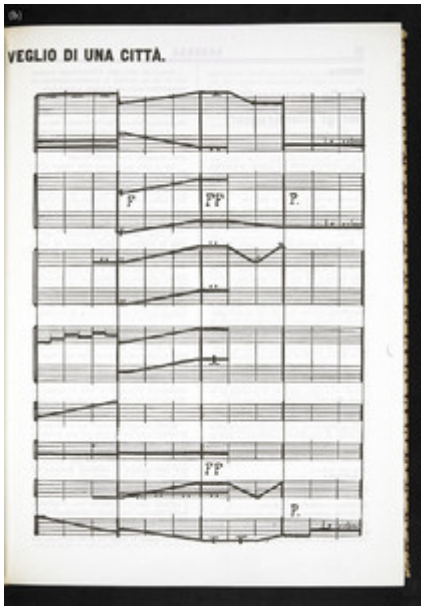


Figure 3. Luigi Russolo, “Risveglio di una città” (the first three letters are lost in the centerfold). These are the opening measures of the final piece for a set of three pieces, *Rete di Rumori,* and was chosen as a sample of Russolo’s notational system in “Grafia enarmonica per gl’intonarumori futuristi,” *Lacerba* (March 1, 1914).

As a sample of his new notational system, Russolo offered a passage from one of his latest compositions, to be premiered the following month at Milan's Teatro dal Verme. This extract comes from a work entitled "Risveglio di una città" (Reawakening of a city), itself part of a cycle of three pieces, *Rete di rumori* (Noise network). As explained in the accompanying article, the passage contains numerous glissandos, as well as quarter-tone pitch adjustments, which are represented by dots, although the dots generally come in pairs, denoting semitones; there are only two examples of quarter-tones, both in the final measure.

This is the only fragment of Russolo's music to survive from the period before World War I; its rare vintage has attracted countless scholarly interpreters.[29] Edward Venn, for example, has argued that Russolo's composition style is revealingly susceptible to conventional music analysis. The tonality is E minor, with propensities toward ♭/♮5 and ♮/♯6; the glissandos are anchored by pedals and drones, which outline a trajectory from I–V–vi (the last of these harmonies coinciding with the *forte* in m. 5); a thematic idea in the *stropicciatori* (m. 1) is picked up and compressed by the *ululatori* (m. 2), to which the *crepitatori* (undergirded by the *scoppiatori*, m. 3) respond with three descending glissandos. These gestures close the phrase and prompt a restatement of the theme (now emphatically in E minor, m. 4). The thematic compression and chromatic harmony hints at a late-nineteenth-century orchestral idiom; the spacing of the instruments is generally orthodox, tending to feature high melodies against low accompaniments.[30] A significant exception is the opening low minor third—which becomes a diminished fifth and then descends through a whole-tone scale. It presents a slowly mutating low rumble, drawing our ears toward the bottom of the texture and gesturing toward a more unusual conception of acoustic space.

It is risky to sketch an interpretation of the piece based on the few surviving measures. But putting together what we have—Russolo's title, complex simultaneities between parts (mm. 7–9), and the imitation of siren effects (mm. 13–18)—we might be tempted to hear "Risveglio di una città" as an urban soundscape. This fragment might plausibly form part of a larger map of city noises: a musical diagram of spatial relationships between sounds "ideally orchestrated together," to quote from *L'arte dei rumori.*

But if "Risveglio" is a map, then it is one bearing traces of the twelve-month period that separated the manifesto from the writing system. During this time, as we have seen, Russolo and Piatti shifted their energies away from exploring the world of timbres and toward making instruments that could "conquer" the enharmonic domain—these two zones being increasingly understood, as their research developed, as mutually incompatible.[31] This much can be seen in the notational system in Figure 3: timbre eludes diagrammatization in this particular urban soundscape, as it does in Russolo's writing system in general. As though foiled in the attempt to notate timbres, he settles for plotting lines through microtonal glissandos.

The resistance, and substitute object, brought about by the engagement with technological materiality evoke ideas from Friedrich Kittler's media theory: as Russolo and Piatti

tried to bring a resonant urban environment to the concert hall—via instrument building and the printed page—they attempted a transposition of media from timbres as signifiers (as nameable qualities of sounds) to a more thoroughgoing abstraction of timbre as an acoustic data stream.[32] They wanted to remove all incidental aspects of environmental sounds, as though to use technology to access timbres in themselves.

We might briefly consider some alternative mediations that Russolo and Piatti could have considered ca. 1913. They did not, for example, suggest bringing timbres of noise into concert music by putting their sound sources in the orchestra pit—as did Pratella in his opera *L'aviatore Dro* (written in 1913–1914 and revised for performance in 1920), which contained a part for *intonarumori*, substituted by a motorbike engine at the premiere.[33] Nor did they attempt to capture timbre by phonographic means. The aim of instrument building—while no doubt guided by the gramophone as a model of technological mediation for sound—was to achieve direct control over timbre in itself, rather than to record and reproduce particular timbres that might be observed in a given place. As it turned out, however, Russolo and Piatti were unable to make timbre writable—according to Kittler's triple-negative formulation for the medialogical ruse, it "does not cease not to write itself"—with the *intonarumori*, as Edison had with sound more generally, by means of the phonograph.[34]

As we have seen, when Russolo described what he heard in his *intonarumori*, he said that the timbres of noises "lost their episodic, solely imitative character" as they were raised or lowered in pitch—or, stated more positively, that the microtonal potential of the *intonarumori* superseded the mimetic and symbolic power of various timbres (of roaring, thundering, gurgling, and so on). Although he was first attracted to timbre because of its manifold symbolic values, its domain proved unreachable by technological means alone.

Socializing Noise

As previously mentioned, Russolo adopted the name *intonarumori* in the course of building instruments. The term stuck: he used it consistently in his writings from July 1913 onward; and it became the brand under which he presented the instruments to their first Milanese audience—at his "Gran concerto futurista per intonarumori" (Grand futurist concert for *intonarumori*), which took place at the Teatro dal Verme on April 21, 1914. On this occasion, Marinetti opened the proceedings, preludizing the appearance of the instruments—at first hidden behind a curtain—by declaiming passages from *L'arte dei rumori.* At length, Russolo appeared and took a position center stage; the curtain rose behind him to reveal the *intonarumori* "arranged in a semicircle at the back of the stage, staring at the audience with their mouths of metal."[35] According to this concert review, published the following day in the newspaper *Il secolo,* there were eighteen instruments: "something like boxes, on which is placed a little stand for music; the mouths of metal are all nearly the same shape."[36] Their unveiling prompted a burst of applause (from what the reviewer from *Il secolo* hints may have been a claque): a group of "signorine futuriste" planted in a box near the stage threw flowers in Russolo's direction. A hush fell as Russo-

lo picked up his baton to conduct the first piece, “Risvelgio di una città.” Yet, as the same reviewer remarked, the first impression of the *intonarumori* was underwhelming; the initial effect of the piece was that of steady diffusion: “a long, monotonous, and indefinable sound spreads throughout the theatre.”[37]

It was not long before the audience began contributing noises of their own: shouts, singing, laughter. Reviews of the evening picked up on the irony of Russolo’s “noise intoners” being drowned out by the noise of the crowd. Some accounts of the evening drew a stronger connection, indicating a synergy between the two sound sources. As the players spun the hand cranks of the *intonarumori*, they seemed to evoke the audience’s jeers:

> Behind the instruments stands the player, who has the job of turning the handle in time with the music to generate the noise. As we saw the wheels being turned, they suggested to us something like musical knife grinders. The public was unequivocal in its intolerance. One could make out a buzz here, a rumble there, then everything mixed with the greater noise of the public, which was shouting and whistling. Who knows what they were whistling, as from that moment on no one heard a thing. They whistled because they whistled. Art for art’s sake. The painter Russolo continued imperturbably to conduct his orchestra of musical cannons, the performers continued to turn their wheels, but the public continued to overwhelm all noises. And those that had gone to the Dal Verme with the intention of listening to the futurist concert, whatever it might have been, had to resign themselves to listening to that of the public.[38]

Writing for the *Corriere della sera*, this reviewer is careful not to suggest a direct link between the *intonarumori* and audience noise (they simply mixed together). Yet a complex kind of causality is being set up by the parallel between the noises onstage and offstage—one that recalls Russolo’s account of Pratella’s concert in the Teatro Constanzi a year before. This time, Russolo takes Pratella’s place as conductor and mediator of theatrical noise: as a lightning rod, which sends listening back to its point of origin in forcing audience members to attend to noises of their own making.

This condition of listening, though described in *L’arte dei rumori* in connection with Pratella’s music, does not seem to have been Russolo’s aspiration in putting on his “Gran concerto futurista per intonarumori”—a show that he would repeat to greater (and non-riotous) acclaim in three more Italian cities in 1914.[39] However, we might ponder further this repetition—willed or not willed—of Pratella’s first Futurist concert. As Russolo took Pratella’s place, the audience were given the chance to take up the aural vantage point that Russolo had described in his manifesto; they became Futurist listeners of crowd noise:

> The orchestral players, pulling levers and turning cranks, drew from those howling, vaguely chromatic pipes, dry drumrolls, like those of tambourines, gurgles that were supposedly hydraulic; the whole theatre burst into an Homeric laughter that seemed a prelude to an outburst of good humor, but little by little, with the monotonous and prolonged repetition for the whole evening of the same noises—

> intended to reproduce, among other things, the whirling noise of the life of a modern industrial town!—turned into a symphony of whistles, of shouts, of popular choruses, of clashes of every kind, which would have drowned out not only Russolo's spirals, but even the gigantic crashing of Niagara Falls.[40]

As this reviewer for *L'Italia* suggests, the audience did not accept the challenge, refusing to listen to themselves through Russolo's ears. They became bored by the instruments and began to laugh. Yet the structure of the joke, which went on too long, relied on aural expectations and imaginations set up by the manifesto: *L'arte dei rumori* had been in circulation for a year prior to the concert, and was, as previously noted, read aloud by Marinetti just before the grand reveal (to the chagrin of the reviewer for *Il secolo*, who lamented "the usual overflow of garish manifestos"). This long sentence—quoted only partially here—enacts the breakdown of listening through the audience's vocalizations.

But it is worth noting the terms of this turn away from listening. This reviewer, for example, dismisses Russolo's concert of noises through derisive bricolage: he twists the names of the *intonarumori* ("gurgles that were supposedly hydraulic") and willfully misunderstands Russolo's notion of enharmonicism ("those howling, vaguely chromatic pipes").[41] The satire deployed is matched to the occasion and is critical in nature. It sidesteps Russolo's implicit double bind—*either* listen to the noises on stage *or* to the noises of the audience, suggesting instead that this circular mode of listening, together with the variously musicalized noises that would be its alternating objects, are ineffectual, perhaps even doomed to failure.

Interference as Heard

Russolo's first Milanese concert presents us with a scenario in which it is no longer clear who or what is producing noise, whether they are doing so successfully or unsuccessfully, or to what end. This event has encouraged my own reading practice: I have accused Russolo of manipulating his listeners' reactions, and his listeners of hearing not only through their own, but also sometimes through his ears. In sketching out these auditory dynamics, my point has not been to redress an imbalance between the actions of artists and the reactions of audiences and critics—the pros and cons of these positions are familiar enough—but to suggest the entanglement of both positions, brought about by the social transaction of listening. As we have seen, the very conjunction *intona-rumori* was born in the critical reception of Pratella's music; Russolo's adoption of the word in the process of making his instruments imaginatively prepared them for their public debut. In other words, he brandished his instruments with a satirical overtone, marking them with a protective sign.

We might read Russolo's staging of his own Futurist aurality—hearing music in the sounds of the jeering crowd—in the same way: as adding a layer of prophylaxis against public derision. In directing his own listening away from the stage and toward the audience, Russolo encouraged others to do the same, in the process providing himself with a backup option in the event that his show should prove a disaster. Thus, when it came to

his first concert at the Dal Verme, he could count himself vindicated whatever happened—whether the audience listened in attentive silence or reacted noisily against him. As things turned out, the latter reaction gained the upper hand: fighting broke out in the theater, cuing the entrance of the carabinieri; after the show, punches were thrown in the Galleria Vittorio Emanuele II, leading to the arrest of at least one brawler.[42]

The sounds of the *intonarumori* were drowned out amid the confusion of the concert and its aftermath; the timbres to which their exotic names correspond—and which Russolo and Piatti had spent months creating—merited scarcely a mention from reviewers. This is in one sense unsurprising: how could audience members have been expected to listen for gradations of tone color when the possibility of concentrated listening was (as the reviewer for the *Corriere della sera* remarked) thus forestalled? Timbre seems to demand a special kind of attention; its cache can be traced historically, as Emily Dolan has recently shown. The idea of timbre emerged in the course of the eighteenth century in dialogue with scientific investigations of the perception of musical tone: in a reaction against physical explanations of hearing, it came to be understood as the object of "pure" aesthetic attention.[43]

In other words, the concept of timbre was one of many offshoots caused by the division between the humanities and sciences that became prevalent in the wake of the Enlightenment.[44] Timbre was famously brought into the realm of the scientifically explainable during the second half of the nineteenth century, as Helmholtz's theories came to be accepted and widely understood but maintained close ties with its aestheticizing roots.[45] Thus, in the early twentieth century, modernists could revive timbre under the sign of concentrated listening. Schoenberg's notion of *Klangfarbenmelodie*, for example, called attention to the act of listening by homing in on shifting timbres, made to glimmer in their isolation against static harmonies and textures in his Five Orchestral Pieces, op. 16 no. 3 of 1909. In other words, timbre beckoned toward a perceptual baseline, much as it did through Russolo's adoption of the term "musical sensibility"—introduced in Pratella's first musical manifesto, as we have seen, and itself a curiously eighteenth-century-sounding coinage. Musical sensibility gestured to an aestheticizing mode of perception, which could unmask timbre in audible phenomena of any kind.

On that evening at the Teatro dal Verme, however, the audience did not, by and large, listen to the timbres of *intonarumori,* nor did they listen to colors of their own noisiness. One way of characterizing this apparent absence of timbral listening would be as failure. Futurism's first concert would thus tell a familiar story of avant-gardist innovation thwarted by their own ambition and a conservative public, with the latter unable or unwilling to hear them.

This historiographical model has its pitfalls, however. As Renato Poggioli long ago noted with Futurism in mind, the historical avant-garde thrives in its agonistic relation to society, above all when its actions fail: "through its very failure, it tends towards a result justifying and transcending itself."[46] In place of this win-win scenario—which bestows not only immediate vindication, but also historical legitimacy—one might be tempted to ascribe

different values to the audience's lack of listening: not to understand it as a failure to hear, but as a refusal—and as itself a kind of listening. Hence, the "symphony of whistles, of shouts, of popular choruses, of clashes of every kind" evoked by the reviewer for the *Corriere della sera*.

Here, timbre reemerges in an alternative guise: not in the form of concentrated listening, but as listening that could become derailed and redirected toward satirical ends.[47] As philosopher Peter Szendy has described, listening is a thoroughly intersubjective act; its object is determined as much through communication between listeners as it is through apperception of sounds by the individual.[48] Conversely, listening may take place even when auditory perception of sound is obscured, partial, or interrupted, and may emerge all the more forcefully as a product of such interference.

For Russolo, one of the most-often-pursued and elusive objects of listening was timbre. We have observed him seeking it by technological means, as he underestimated the gulf that separates nameable timbres from their acoustic correlates. And yet, as his first concert shows, the technical problem presented by timbre was only part of a more fundamental social conundrum: one brought about by the historical and social dynamics of listening in early-twentieth-century Milan. Screeches, creaks, rustles, buzzes, crackles: words for types for noise are able to reach their object only through acts of sense-making and within particular communities of listeners. Timbres such as these could not be extracted from the urban soundscape in the absence of the listeners who heard them and endowed them with value.

The Futurists' combative stance vis-à-vis Milanese society dramatized this point, perhaps nowhere more clearly than through their interactions with the newspaper press. As we have seen many times throughout these pages, newsprint—both in the form of newspapers and manifesto culture—was a vital ingredient of the social stabilization and valorization of timbre. Not only did newspapers provide a channel for the discussion and communication of noise (timbre included), but they also furnished—and, in the case of *intonarumori*, preempted—the vocabulary that gave impetus to Russolo's aural imagination. And so what began in the attempt to wrest timbres from the city had to end with a crunch—in the unheard laughter of newspaper sheets being unfurled, silently read, and refolded.

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Notes:

([1]) This chapter draws on archival materials held at the Biblioteca Comunale Fabrizio Trisi in Lugo, where I was fortunate to meet Ivana Pagani and Daniele Serafini. They have encouraged and assisted this project in many ways. I am also very grateful to Axel Körner and Roger Parker for their advice and support. Customary though it is to say, none of these people bear responsibility for what follows.

Douglas Kahn, *Noise Water Meat: A History of Sound in the Arts* (Cambridge, MA: MIT Press, 1999), 45–67; Kodwo Eshun, *More Brilliant than the Sun: Adventures in Sonic Fiction* (London: Quartet Books, 1998); Mara Mills, “Do Signals Have Politics? Inscribing Abilities in Cochlear Implants,” in *The Oxford Handbook of Sound Studies*, ed. Trevor Pinch and Karin Bijsterveld (New York: Oxford University Press, 2012), 320–345.

([2]) Mills, “Do Signals Have Politics?”; Steve Goodman, *Sonic Warfare: Sound, Affect, and the Ecology of Fear* (Cambridge, MA: MIT Press, 2010), 49–54; Greg Haigne, *Noise Matters: Towards an Ontology of Noise* (New York: Bloomsbury, 2013).

([3]) “Nous chanterons les grandes foules agitées par le travail, le plaisir ou la révolte; les ressacs multicolores et polyphoniques des révolutions dans les capitales modernes.” Filippo Tommaso Marinetti, “Fondation et manifeste du futurisme,” *Le Figaro* (February 20, 1909), 1.

([4]) My working definition of Futurism is meant to evoke something like an “acoustemology” of the avant-garde—what Steven Feld, in another context, described as “local conditions of acoustic sensation, knowledge, and imagination embodied in the culturally particular sense of place.” Steven Feld, “Waterfalls of Song: An Acoustemology of Place Resounding in Bosavi, Papua New Guinea,” in *Senses of Place*, ed. Steven Feld and Keith H. Basso (Woodbridge, Suffolk: Boydell & Brewer, 1996), 91. There is a long tradition of attempts to theorize Futurism; I draw particularly on Renato Poggioli, *Teoria dell’arte d’avanguardia* (Bologna: Mulino, 1962); Marjorie Perloff, *The Futurist Moment: Avant-Garde, Avant Guerre, and the Language of Rupture* (Chicago: University of Chicago, 1986); Jeffrey Schnapp, “Crash (Speed as Engine of Individuation),” *Modernism/Modernity* 6, no. 1 (1999): 1–49.

([5]) Martinetti attended a performance of an intermezzo from Pratella’s opera, *Sina ’d Vargöun*, which took place between acts of *Tosca* at the Teatro Comunale di Imola on August 20, 1910, and was impressed; see Giulia Albertario, “L’Aviatore Dro Di Francesco Balilla Pratella,” *Rivista Italiana di Musicologia* 48 (2013): 179–210.

([6]) Antonio Castronuovo and Sante Medri, *Il futurismo a Lugo* (Imola, Bologna: La Mandragora, 2003), 42–49; Gianfranco Maffina, *Caro Pratella: Lettere a Francesco Balilla Pratella* (Ravenna: Girasole, 1980).

([7]) Francesco Ballila Pratella, *Manifesto dei Musicisti Futuristi* (Milan: Redazione di "Poesia," 1910).

([8]) However, Pratella suggests that there was a huge backlash from the press in his autobiography, *Testamento*, ed. Rosetta Berardi and Francesco Serra (Ravenna: Girasole, 2012), 154. See also Daniele Lombardi, *Il suono veloce: Futurismo e Futurismi in musica* (Lucca: Casa Ricordi, 1996), 164–165.

([9]) "Liberare la propria sensibilità musicale da ogni imitazione od influenza del passato. Sentire e cantare con l'anima rivolta all'avvenire, attingendo ispirazione ed estetica dalla natura, attraverso tutti i suoi fenomeni presenti, umani e extraumani, esaltare l'uomo-simbolo rinnovantesi perennemente nei vari aspetti della vita moderna e nelle infinite sue relazioni intimi con la natura." Pratella, *Manifesto dei Musicisti Futuristi*, 1910.

([10]) Pratella remembers being invited to Milan to witness Martinetti's extensive publishing and publicity machine first hand; see Pratella, *Testamento*, 151.

([11]) Pratella, "Manifesto dei Musicisti Futuristi."

([12]) Pratella, *Testamento*, 163–170.

([13]) "Per vincere a Parigi e apparire agli occhi di tutta d'Europa come un innovatore assoluto, più avanzato di tutti, io ti consiglio con tutto il cuore di metterti al lavoro con volontà decisa di essere più andare, più avanzato, più pazzo, più inatteso, più eccentrico di tutto ciò che è stato fatto in musica.—Ti consiglio di essere un vero rompicollo e di non fermarti che quando tutti intorno a te ti avranno dichiarato pazzo, incomprensible, grottesco, ecc." Letter from Martinetti to Pratella, April 12, 1912, held at the Biblioteca Comunale Fabrizio Trisi, Lugo. Marinetti's letters to Pratella sometimes enclosed musical scores (by Debussy, Ravel, Strauss, and others) recently published in Paris, obtainable only in large Italian cities such as Milan.

([14]) Maffina, *Caro Pratella*. See also the letters reproduced in Orlando Piraccini and Daniele Serafini, *Note futuriste: L'archivio di Francesco Balilla Pratella e il cenacolo lughese* (Bologna: Compositori, 2010).

([15]) "Attraversiamo una grande città moderna con le orrechie più attente che gli occhi …" Luigi Russolo, *L'arte dei rumori* (Milan: Direzione del movimento futurista, 1913).

([16]) "Caro Balilla Pratella, grande musicista futurista, A Roma, nel Teatro Costanzi affollatissimo, mentre coi miei amici futuristi Marinetti, Boccioni, Carrà, Balla, Soffici, Papini, Cavacchioli ascoltavo l'esecuzione orchestrale della tua travolgente Musica futurista, mi apparve alla mente una nuova arte che tu solo puoi creare: l'Arte dei Rumori, logica conseguenza delle tue meravigliose innovazioni." Ibid.

([17]) "Questa evoluzione della musica è parallela al moltiplicarsi delle macchine, che collaborano dovunque coll'uomo. Non soltanto nelle atmosfere fragorose delle grandi città, ma anche nelle campagne, che furono fino a ieri normalmente silenziose, la macchina ha

oggi creato tanta varietà e concorrenza di rumori, che il suono puro, nella sua esiguità e monotonia, non suscita più emozione. Per eccitare ed esaltare la nostra sensibilità, la musica andò sviluppandosi verso la più complessa polifonia e verso la maggior varietà di timbri o coloriti strumentali, ricercando le più complicate successioni di accordi dissonanti e preparando vagamente la creazione del rumore musicale." Ibid.

([18]) "[O]sservare con attenzione continua tutti i rumori, per comprendere i vari ritmi che li compongono, il loro tono principale e quelli secondari. Paragonando poi i timbri vari dei rumori ai timbri dei suoni, si convinceranno di quanto i primi siano più numerosi dei secondi. Questo ci darà non solo la comprensione ma anche il gusto e la passione dei rumori. La nostra sensibilità moltiplicata, dopo essersi conquistati degli occhi futuristi avrà finalmente delle orecchie futuriste. Così i motori e le macchine delle nostre città industriali potranno un giorno essere sapientemente intonati, in modo da fare di ogni officina una inebbriante orchestra di rumori. Caro Pratella, io sottopongo al tuo genio futurista queste mie constatazioni, invitandoti alla discussione. Non sono musicista: non ho dunque predilezioni acustiche, né opere da difendere. Sono un pittore futurista che proietta fuori di sé in un'arte molto amata la sua volontà di rinnovare tutto." Ibid.

([19]) Pierre Bourdieu, *The Field of Cultural Production: Essays on Art and Literature*, trans. Randal Johnson (New York: Columbia University Press, 1993), 29–74.

([20]) The aural logic of dreams—the way that sounds appear to consciousness via unconscious perception—is first outlined in Sigmund Freud's *The Interpretation of Dreams* [orig. 1900], trans. James Strachey (London: Penguin, 1991), and later formalized in his notion of hearing "awry" in *The Ego and the Id* [orig. 1923], trans James Strachey (London: Vintage, 2001), 25.

([21]) The photographs of Russolo and Piatti that were released to publicize the *intonarmouri* around this time, showing them in concert attire, further confirm that "art music" was their intended target.

([22]) The quasi-imperial relationship between centers of Futurism, such as Milan, and its many peripheries, such as Lugo, has been discussed extensively; see, for example, Willard Bohn, *The Other Futurism: Futurist Activity in Venice, Padua, and Verona* (Toronto: University of Toronto Press, 2004); and Castronuovo and Medri, *Il futurismo a Lugo*.

([23]) "Il primo dà il rumore *Scoppìo*, tipo motore d'automobile; il secondo dà il *Crepitìo*, tipo fucileria; il terzo dà il *Ronzìo*, tipo dimamo; il quarto dà diverse varietà di *Stropicìi*." Luigi Russolo, "Gl'intonarumori futuristi: Arte dei rumori," *Lacerba*, July 1, 1913, 140.

([24]) Russolo claimed that research into further noises—whistling (*sibili*), screeching (*stridori*), and cracking (*fruscii*)—was already complete. Ibid.

([25]) "[Q]uantunque la somiglianza di timbro col rumore imitato, naturale, sia raggiunta in questi strumenti fin quasi al punto da ingannare, tuttavia non appena si sente che il ru-

more varia di tono, ci si accorge che esso perde subito il suo carattere episodico unicamente imitativo." Ibid., 141.

([26]) Russolo's mode of listening thus rehearses a set of concerns familiar from phonography. As Douglas Kahn points out, both phonography and Russolo's "L'arte dei rumori" share common technological preoccupations with nineteenth-century explorations of the sonic Real; see *Noise Water Meat*, 8–10. Meanwhile, Luciano Chessa suggests that Russolo did not want to reproduce sounds, arguing instead that he wanted from the beginning (not only in his later writings) to explore noises for their spiritual value, as a means of transport to an "occult" world; see Luciano Chessa, *Luigi Russolo, Futurist: Noise, Visual Arts, and the Occult* (Berkeley and Los Angeles: University of California Press, 2012), 137–150.

([27]) Pratella had already made a similar suggestion—"Considerare la enarmonia come una magnifica conquista del futurismo" (to consider enharmonicism as a magnificent conquest of Futurism)—in his "Manifesto technico della Musica Futurista" of March 11, 1911; op. cit. Daniele Lombardi, *Il suono veloce*, 166.

([28]) "[C]ompie delle complete scale in discesa [che] non sono nè diatoniche nè cromatiche, sono invece enarmoniche." Luigi Russolo, "Conquista totale dell'enarmonismo mediante gl'intonarumori futuristi," *Lacerba*, November 1, 1913, 242.

([29]) For example, Robert P. Morgan has argued that we should understand Russolo's compositional fragment against the background of nineteenth-century musical autonomy. See "'A New Musical Reality': Futurism, Modernism, and 'The Art of Noises'," *Modernism/Modernity* 3 no. 1 (1994), 140.

([30]) For an alternative reading of these bars (along with a transcription into conventional notation), see Edward Venn, "Rethinking Russolo," *Tempo* 64, no. 251 (2010), 8–16.

([31]) Russolo, "Conquista totale dell'enarmonismo mediante gl'intonarumori futuristi."

([32]) Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop Young and Michael Wutz (Stanford, CA: Stanford University Press, 1999), 9.

([33]) Gianfranco Maffina, "Pratella, Russolo e la musica futurista," in *Francesco Balilla Pratella: Edizioni, scritti, manoscritti musicali e futuristi*, ed. Domenico Tampieri, (Ravenna: Longo, 1995), 369.

([34]) Kittler, *Gramophone, Film, Typewriter*, 94.

([35]) "Gli strumenti stanno disposti in semicerchio sul fondo del palcoscenico guardando il pubblico con le loro bocche di metallo." In "Serata musicale futurista: Chiassate, violenze ed arresti," *Il secolo,* April 23, 1914.

([36]) "Sono specie di cassette sulle quale sovrasta un piccolo leggio per la musica; le bocche mettaliche hanno tutte una forma pressoché uguale." Ibid.

([37]) “Un suono lungo, monotono, indefinibile si diffonde nel teatro.” Ibid.

([38]) “Dietro allo strumento sta il suonatore, il quale ha l’ufficio di girare a tempo di musica una manovella per suscitare il rumore. A vederli girare le ruote così essi apparivano come degli arrotini della musica. Ma non ci fu verso di poter sentire niente. Il pubblico fu di una intolleranza incondizionata. Si percepì qualche ronzio, qualche brontolio, poi tutto si confusò nel più grande rumore del pubblico che urlava e fischiava. Che cosa fischiasse, dal momento che non si sentiva nulla, non si sa bene. Fischiava per fischiare. L’arte per l’arte. Il pittore Russolo continuò imperturbabile a dirigere la sua orchestra di bocche di fuoco musicali, i professori continuarono nel loro giramento di ruote, ma il pubblico continuò a soverchiare tutti i rumori. E coloro che erano andati al Dal Verme con l’intenzione di ascoltare il concerto futurista, qualunque fosse, dovettero rassegnarsi ad ascoltare quello del pubblico.” “Dal Verme, Gli ‘intonarumori futuristi’: Un concerto finito a pugni,” *Corriere della sera* (April 22, 1914): 6.

([39]) Rodney Payton, “The Music of Futurism: Concerts and Polemics,” *The Musical Quarterly* 62, no. 1 (1976), 25–45.

([40]) “i professori d’orchestra, premendo leve e rotando manovelle, trassero da quei tubi ululati lontanamente cromatici, rulli secchi come di tamburelle, gorgoglii di intenzione idraulica; tutto il teatro scoppiò in una omerica risata che parve preludere ad un sfogo di buonumore ma che poco a poco, col ripetersi monotono e prolungato per tutta la serata degli stessi rumori—destinati a riprodurre tra altro il turbinoso frastuono della moderna vita industriale cittadina!—si convertì in una sinfonia di sibili, di urli, di cori popolari, di fragori di ogni genere tale da soverchiare non solo le spirali del Russolo ma anche gli scrosci giganti delle cascate del Niagara.” A. Cameroni, *L’Italia*, April 22, 1914, 6.

([41]) We can also detect manifesto-specific targeting in this reviewer’s mention of crowd noises that would have overwhelmed a waterfall—one of the first noises mentioned in “L’arte dei rumori.” I have discussed this passage in “A Voice of the Crowd: Futurism and the Politics of Noise,” *19th-Century Music* 37 no. 2 (2013), 124–125.

([42]) See, for example, the account of the evening in the *Giornale d’Italia,* April 22, 1914.

([43]) Emily Dolan, *The Orchestral Revolution: Haydn and the Technologies of Timbre* (Cambridge: Cambridge University Press, 2013), 53–89.

([44]) Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993), 1–12.

([45]) The reception of Helmholtz in England has been traced by Benjamin Steege, *Helmholtz and the Modern Listener* (Cambridge: Cambridge University Press, 2012), 193–206.

([46]) Renato Poggioli, *Theory of the Avant-Garde*, trans. Gerald Fitzgerald (Cambridge, MA: Harvard University Press, 1968), 65–66.

([47]) Fifty years earlier, the connection between “avenirsme” and new timbres was sparked by Wagner’s arrival in Paris; as with the Russolo’s Milanese concert, journalists deployed satire (and in Berlioz’s case, satirical composition) as a means of attending to strange sounds. See Flora Willson, “Future History: Wagner, Offenbach, and ‘La musique de l’avenir’ in Paris, 1860,” *Opera Quarterly* 30, no. 4 (2014): 287–314.

([48]) Peter Szendy, *Listen: A History of Our Ears*, trans. Charlotte Mandell (New York: Fordham University Press, 2008), 1–11.

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